

**WHAT IS CLAIMED IS:**

1. A medical needle shield apparatus comprising:  
a monolithic needle hub including a collar; and  
a shield having a proximal end receivable by the collar and including a plurality of  
5 hingedly connected segments, the shield being extensible between a retracted position and an extended position.

2. A medical needle shield apparatus as recited in claim 1, wherein the collar defines an interior cavity configured to receive the proximal end of the shield.

3. A medical needle shield apparatus as recited in claim 2, wherein the interior cavity  
10 defines notches that receive tabs formed with the proximal end of the shield to lock the needle hub with the shield.

4. A medical needle shield apparatus as recited in claim 1, further comprising at least two surfaces which engage to limit rotation of the shield relative to the needle hub.

5. A medical needle shield apparatus comprising:  
15 a needle hub having a collar defining an interior cavity, the needle hub supporting a needle having a distal end; and

a shield having a proximal end and a distal end, the proximal end of the shield being receivable within the interior cavity of the collar in an interlocking engagement, the shield being extensible from a retracted position and an extended position wherein the distal end of the shield  
20 encloses at least a portion of the distal end of the needle.

6. A medical needle shield apparatus as recited in claim 5, wherein the collar is monolithically formed with the needle hub.

7. A medical needle shield apparatus as recited in claim 5, wherein the shield includes at least two hingedly connected segments.

5 8. A medical needle shield apparatus as recited in claim 5, wherein the interior cavity defines notches that receive tabs formed with the proximal end of the shield.

9. A medical needle shield apparatus as recited in claim 8, wherein the tabs are biased for receipt within the notches.

10. A medical needle shield apparatus as recited in claim 5, wherein the shield is locked in the extended position.

11. A medical needle shield apparatus as recited in claim 5, wherein the shield is irreversibly locked in the extended position.

12. A medical needle shield apparatus as recited in claim 5, wherein the shield is locked in the extended position via engagement with the needle.

15 13. A medical needle shield apparatus as recited in claim 5, wherein the shield includes a lock that engages the needle to lock the shield in the extended position.

14. A medical needle shield apparatus as recited in claim 13, wherein the lock includes a portion configured to flexibly engage the needle and biased to lockably retain the needle.

15. A medical needle shield apparatus as recited in claim 5, wherein the shield includes locking means to lock the shield in the extended position.

16. A medical needle shield apparatus as recited in claim 5, wherein the shield includes a linear bearing configured to enclose at least a portion of the distal end of the needle.

5 17. A medical needle shield apparatus as recited in claim 16, wherein the linear bearing is hingedly connected to the shield proximal to the distal end of the shield.

18. A medical needle shield apparatus as recited in claim 16, wherein the linear bearing is configured such that at least a portion of the needle is enclosed by the shield during extension of the shield.

10 19. A medical needle shield apparatus as recited in claim 5, wherein the needle hub has a luer fitting configured to attach to a syringe.

20 20. A medical needle shield apparatus as recited in claim 5, wherein the shield includes a proximal segment engaging a retention catch formed with the proximal end of the shield to releasably dispose the shield in the retracted position.

15 21. A medical needle shield apparatus as recited in claim 5, further comprising a sheath engageable with the needle hub.

22. A medical needle shield apparatus as recited in claim 21, wherein the sheath has guide rails configured to facilitate engagement of the sheath and the needle hub.

20 23. A medical needle shield apparatus as recited in claim 5, wherein the shield has an articulating actuator configured to urge the shield towards the extended position.

24. A medical needle shield apparatus as recited in claim 5, further comprising a tape down member attached to the shield and configured to facilitate extension of the shield.

25. A medical needle shield apparatus as recited in claim 5, wherein the needle hub includes guide surfaces to facilitate engagement of the shield and the needle hub.

5 26. A medical needle shield apparatus as recited in claim 5, wherein the needle hub includes at least one catch and the shield includes at least one corresponding protrusion which engage to lock the shield in the extended position.

27. A medical needle shield apparatus as recited in claim 7, wherein the segments are connected via living hinges.

28. A medical needle shield apparatus as recited in claim 27, wherein the segments include relief portions formed adjacent the living hinges.

29. A medical needle shield apparatus as recited in claim 28, wherein the relief portions are configured to flex inwardly toward the needle.

30. A medical needle shield apparatus as recited in claim 5, wherein the shield has a proximal segment including at least one rib.

31. A medical needle shield apparatus as recited in claim 30, wherein the at least one rib has a transverse orientation.

32. A medical needle shield apparatus as recited in claim 5, configured for use with a port access needle.

33. A medical needle shield apparatus as recited in claim 32, wherein a pair of wings are attached to the proximal end of the shield.

34. A medical needle shield apparatus as recited in claim 32, wherein the shield includes a needle latch that engages the needle in the extended position.

5 35. The medical needle shield apparatus according to claim 7, wherein the hingedly connected segments are connected by pinned hinges.

36. The medical needle shield apparatus according to claim 13, wherein the lock includes at least one catch for engagement with a corresponding protrusion disposed on the shield in the extended position.

37. The medical needle shield apparatus according to claim 36, wherein the at least one catch includes at least one capture hole.

38. The medical needle shield apparatus according to claim 36, wherein the at least one catch includes at least one indentation.

39. The medical needle shield apparatus according to claim 36, wherein the at least one catch includes at least one flanged surface.

40. The medical needle shield apparatus according to claim 13, wherein the lock includes at least one catch for engagement with a corresponding protrusion disposed on the hub in the extended position.

41. The medical needle shield apparatus according to claim 40, wherein the at least one catch includes at least one capture hole.

42. The medical needle shield apparatus according to claim 40, wherein the at least one catch includes at least one indentation.

43. The medical needle shield apparatus according to claim 40, wherein the at least one catch includes at least one flanged surface.

44. The medical needle shield apparatus according to claim 13, wherein the lock includes at least one protrusion for engagement with a corresponding catch disposed on the shield in the extended position.

45. The medical needle shield apparatus according to claim 44, wherein the at least one catch includes at least one capture hole.

46. The medical needle shield apparatus according to claim 44, wherein the at least one catch includes at least one indentation.

47. The medical needle shield apparatus according to claim 44, wherein the at least one catch includes at least one flanged surface.

48. The medical needle shield apparatus according to claim 13, wherein the lock includes at least one protrusion for engagement with a corresponding catch disposed on the hub in the extended position.

49. The medical needle shield apparatus according to claim 48, wherein the at least one catch includes at least one capture hole.

50. The medical needle shield apparatus according to claim 48, wherein the at least one catch includes at least one indentation.

51. The medical needle shield apparatus according to claim 48, wherein the at least one catch includes at least one flanged surface.

52. The medical needle shield apparatus according to claim 7, further comprising a latch which secures a distal segment of the shield in the extended position, the distal segment having an

underside including a surface extending over at least a portion of the distal segment for retaining the distal end of the needle.

53. The medical needle shield apparatus according to claim 52, wherein the latch includes at least one lock associated with the distal segment for securing the distal segment to the shield in the extended position.

54. The medical needle shield apparatus according to claim 7, further comprising a retainer for holding the segments in a retracted position.

55. The medical needle shield apparatus according to claim 54, wherein the retainer includes a retainer arm disposed on the needle hub and extending to a corresponding catch disposed on the shield in the retracted position.

56. The medical needle shield apparatus according to claim 54, wherein the retainer includes at least one retention catch disposed on the segments.

57. The medical needle shield apparatus according to claim 56, wherein the at least one retention catch includes at least one capture hole for engagement with a corresponding protrusion disposed on the shield in the retracted position.

58. The medical needle shield apparatus according to claim 56, wherein the at least one retention catch includes at least one flanged surface for engagement with a corresponding protrusion disposed on the shield in the retracted position.

59. The medical needle shield apparatus according to claim 5, further comprising a retention catch disposed on the needle hub for latching to the shield in the retracted position.

60. The medical needle shield apparatus according to claim 7, wherein at least one segment includes at least one rib for positioning the needle.

61. The medical needle shield apparatus according to claim 7, wherein at least one segment includes at least one needle guide for facilitating extension of the segments when extending the shield over the needle.

5 62. The medical needle shield apparatus according to claim 5, wherein the shield further includes a raised surface for urging the shield to the extended position.

63. The medical needle shield apparatus according to claim 5, wherein the needle comprises an open-ended needle.

64. The medical needle shield apparatus according to claim 5, wherein the needle comprises a double wall needle.

65. The medical needle shield apparatus according to claim 5, wherein the distal end of the needle includes a bevel aligned in a plane of symmetry with the shield for indicating orientation of the bevel.

66. A medical needle shield apparatus comprising:

a needle hub; and

15 a shield having a proximal end connected to the needle hub and a distal end, the shield being extensible between a retracted position and an extended position, wherein the shield includes at least one catch and at least one corresponding protrusion which engage to lock the shield in the extended position.

20 67. A medical needle shield apparatus as recited in claim 66, wherein the shield includes a plurality of hingedly connected segments.



68. A medical needle shield apparatus as recited in claim 66, wherein the protrusion includes a latching arm extending from a segment and the catch including a flanged surface disposed adjacent a hinged connection.

69. A medical needle shield apparatus comprising:

a needle hub means for supporting a needle; and

a shield means for engaging the needle hub means, the shield means being extensible between a retracted position and an extended position.

70. A medical needle shield apparatus as recited in claim 69, wherein the shield means includes a locking means for locking the shield means in the extended position.

71. A medical needle shield apparatus comprising:

a monolithically formed needle hub having a collar defining an interior cavity having notches, the needle hub supporting a needle cannula having a distal end; and

a shield having a proximal end and a distal end, the proximal end of the shield being receivable within the interior cavity of the collar in an interlocking engagement, wherein the shield has tabs biased to project through the notches, the shield including a distal segment and a proximal segment connected via a living hinge, and being extensible between a retracted position and an extended position, the distal segment including a linear bearing configured to slide along the needle cannula during extension of the shield and enclose at least a portion of the needle cannula in the extended position and the proximal segment having a locking means for locking the shield in the extended position, the proximal end of the shield having a retention catch configured to engage the

proximal segment for releasably disposing the shield in the retracted position, the proximal segment further including transverse ribs.

72. A medical needle shield apparatus comprising:

a shield having at least one hinge; and

a relief formed adjacent the at least one hinge and configured to flex inwardly.

73. A medical needle shield apparatus comprising:

a needle hub having at least one locking wing disposed at a distal end thereof and an axial surface; and

a shield having a proximal end configured for interlocking engagement with the at least one locking wing and receipt of the axial surface, the shield being extensible between a retracted position and an extended position.

74. A medical needle shield apparatus as recited in claim 73, wherein the axial surface has an arcuate configuration.

75. A medical needle shield apparatus as recited in claim 74, wherein the shield has an arched shield adapter for receipt of the axial surface.

76. A medical needle shield apparatus as recited in claim 75, wherein the hub includes an abutment surface configured to engage the arched shield adapter.

77. A fluid collection apparatus comprising:

a holder having at least two arms extending therefrom; and

a shield extending from the holder and having at least one locking member for engaging at least one of the arms.

5 78. A fluid collection apparatus as recited in claim 77, wherein the shield intersects a longitudinal axis of a needle mounted to the holder.

79. A fluid collection apparatus as recited in claim 77, wherein the shield is extensible to an extended position, the shield including at least one surface configured to maintain the shield in the extended position.

10 80. A fluid collection apparatus as recited in claim 77, wherein the shield includes a proximal segment and a distal segment, the apparatus further comprising at least one retaining member formed on each of the segments.

81. A fluid collection apparatus as recited in claim 77, further comprising a membrane mounted to the holder and configured to maintain sterility of at least a portion of the apparatus.

15 82. A fluid collection apparatus as recited in claim 77, wherein the shield is configured for surface activation.

83. A fluid collection apparatus as recited in claim 77, wherein the apparatus is monolithically formed.

84. A medical needle shield apparatus comprising:

a needle being oriented in at least two axes;

an extensible shield having a bearing mounted at a distal end thereof, wherein the bearing slidably receives at least a portion of the needle; and

5 an engagement member attached to the extensible shield.

85. A medical needle shield apparatus as recited in claim 84, wherein the shield is actuatable to an extended position.

86. A medical needle shield apparatus as recited in claim 85, wherein in the extended position the bearing encloses a distal end of the needle.

10 87. A medical needle shield apparatus as recited in claim 84, wherein the engagement member is releasably attached to the extensible shield.

88. A medical needle shield apparatus as recited in claim 84, wherein the engagement member includes a substrate for engagement with a substrate.

15 89. A medical needle shield apparatus as recited in claim 85, wherein the shield includes a needle latch for maintaining the shield in the extended position via engagement with the needle.

90. A medical needle shield apparatus as recited in claim 89, wherein the needle latch has an arcuate outer surface and a radial edge.

91. A medical needle shield apparatus comprising:

a needle; and

a shield being extensible to an extended position, the shield having a linear bearing disposed proximal to a distal end of the shield, the needle being slidably received by the linear bearing.

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92. A medical needle shield apparatus as recited in claim 5, wherein the apparatus is monolithically formed.

93. A medical needle shield apparatus comprising:

a needle hub;

a shield having a proximal end attached to the needle hub, a distal end and being extensible to an extended position; and

a tape down member being attached to the distal end of the shield, the tape down member being configured to facilitate extension of the shield.